

WHAT IS CLAIMED IS:

1. An isolated or purified polypeptide comprising the 145-amino acid sequence set forth in Figure 7.
2. An isolated or purified polypeptide consisting of the 145-amino acid sequence set forth in Figure 7.
3. An isolated or purified polypeptide comprising the amino acid sequence YVGAAAV, wherein the polypeptide stimulates a protein kinase B signaling pathway.
4. The polypeptide according to claim 3, wherein the protein kinase B is Akt.
5. An isolated or purified polypeptide comprising the amino acid sequence YVGAAAV, wherein the polypeptide binds vascular endothelial growth factor receptor 2.
6. The polypeptide according to claim 5, wherein the endothelial growth factor receptor 2 is flk-1/KDR.
7. A method of inducing migration and/or organization and/or survival vascular endothelial cells, comprising administering to the cells an effective amount of the polypeptide according to claim 1.
8. A method of attenuating chemotherapy toxicity in a patient receiving chemotherapy, comprising administering to the patient a toxicity attenuating amount of the polypeptide according to claim 1.
9. The method according to claim 8, wherein the chemotherapy comprises administration of doxorubicin.

10. The method according to claim 8, wherein the toxicity comprises at least one toxicity chosen from cardiac tissue toxicity, bone marrow toxicity, gastrointestinal tract toxicity, kidney toxicity, and bladder toxicity.

11. A method of lengthening the life-span of living tissue or isolated cells from tissue outside of a living being, comprising administering to the tissue or cells an effective amount of the polypeptide according to claim 1.

12. The method according to claim 11, wherein the tissue is organ tissue.

13. A method of protecting against ischemic reperfusion injury, comprising administering an effective amount of the polypeptide according to claim 1 to a patient anticipated to suffer ischemic reperfusion injury.

14. The method according to claim 13, wherein the administration is targeted to a tissue anticipated to suffer ischemic reperfusion injury.

15. The method according to claim 14, wherein the administration is performed during a surgical procedure, prior to surgical wound closure, and the tissue is chosen from lung, carotid artery, aorta, and cardiac tissue.

16. An implantable medical device or implant coated with a polypeptide according to claim 1.

17. The device or implant according to claim 16, wherein the device or implant comprises a suture.

18. A method of increasing the rate of wound healing, comprising applying to a wound in need of healing an effective amount of a vascular endothelial growth factor (VEGF) variant.

19. The method according to claim 18, wherein the VEGF variant comprises a variant chosen from VEGF₁₄₄, VEGF₁₆₄, and the polypeptide according to claim 1.

20. The method according to claim 18, wherein the wound in need of healing is chosen from diabetic ulcers, ulcers resulting from peripheral arterial disease, pressure sores, acute surgical wounds, and burns.

21. An isolated or purified polypeptide comprising the 171-amino acid sequence set forth in Figure 7, which sequence includes a 26-amino acid signal sequence at the amino terminus.

22. A method of inducing survival pathway in stem cells comprising contacting at least one multipotent stem cell with the polypeptide according to claim 1.

23. An additive for cell culture medium comprising the polypeptide according to claim 1.

24. A cell culture medium comprising the polypeptide according to claim 1.